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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/539,592	06/17/2005	Reinhold Rueger	MERCK-3037	4756

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EXAMINER	
PARVINI, PEGAH	
ART UNIT	PAPER NUMBER
1793	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/539,592	RUEGER ET AL.	
	Examiner	Art Unit	
	PEGAH PARVINI	1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 May 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 3-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 and 3-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicants' submission filed on May 27, 2008 has been entered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 3-4, 6-11, and 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable by US Patent No 6,569,529 to Phillips et al.

Regarding claims 1, 4 and 14, Phillips et al. teach interference pigment flakes comprising a reflector layer in the middle (as shown in Figures 1, 4, 5 and 8), a dielectric layer which, in fact, have alternating layers of low and high index materials which can be formed with layers having a graded index low-to-high, a graded index high-to-low, a graded index low-to-high-to-low, a graded index high-to-low-to-high, as well as

combinations and multiples thereof (Abstract; column 1, lines 65-67; column 2, line 1; column 7, lines 66-67; column 8, lines 1-25). It should be noted that this layer is the substrate layer onto which the metal oxide are being deposited (Figure 4). Furthermore, Phillips et al. disclose that suitable materials of low refractive index material may be SiO_2 (column 7, lines 4-8, 38-40). In addition, Phillips et al., in an alternative embodiment, disclose that the substrate (i.e. reflector layer) may be mica or glass flake (column 1, lines 17-22). Even though, the reference in column 11 may disclose that the substrate is overcoated with a reflector coating, such as a reflective metallic coating which may be metals or alloys or combinations of metals such as aluminum and titanium (column 6, lines 39-50), said reference is seen to read on the limitation of instant claim 1 with reference to the substrate of mica or glass being coated with SiO_2 since claim 1 does not claim that SiO_2 is the metal oxide layer being in contact with the substrate.

Additionally, Phillips et al. disclose that desired effects can be achieved through variation of parameters such as thickness of the layers forming the flakes and foils and the index refraction of each layer; thus, it would have been obvious to adjust the thickness to a desired value.

With reference to the outer protective layer, it is noted the instant claim recite the language of "…and optionally (D) an outer protective layer." Therefore, the existence of this layer is optional not necessary.

With reference to the high refractive index material having a refractive index value of greater than 1.8, it is noted that it is well settled in the art that metal oxides such as TiO_2, Fe_2O_3, Cr_2O_3, etc. has such as a high refractive index value.

Regarding claim 3, Phillips et al. disclose that the reflector layer is made up of aluminum, titanium, or combinations thereof or of mica or glass flakes (column 6, lines 39-50; column 11, lines 16-22; claim 42; Figure 4, 5, and 8).

Regarding claims 6-8, Phillips et al. disclose that a suitable high refractive index material may be titanium dioxide (TiO_2), and others (column 7, lines 22-37). It is, further, noted that the high refractive index material is applied onto the low refractive index material of SiO_2 (column 7, lines 3-8; column 8, lines 1-25).

Regarding claims 9 and 10, it is noted that they depend directly or indirectly on claim 1, and based on claim 1 recitation, either layer (B) or (C) may be present. Thus, taking only layer (B) being present, Phillips et al. reference is assumed to read on the limitation of said claims.

Regarding claim 11, it is, again, noted that since based on the recitation of claim 1, the existence of layer (D) is optional; thus, Phillips et al. reference is seen to read on the limitation of said claim.

Regarding claim 13, Phillips et al. teach that the disclosed pigment, as described in details above, can easily be utilized in paints and inks for various applications (column 3, lines 38-41).

Claims 5 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Phillips et al. as applied to claim 1 above, and further in view of PCT Application No. WO 01/77235 to Steudel et al.

This rejection is over WO 01/77235; however, for convenience, the paragraph numbers of the equivalent US Patent, US Patent Application Publication No. 2003/0092815, will be cited below.

In this rejection, the rejection of claim 11 is an alternative to the rejection defined above.

Regarding claims 5 and 11, Phillips et al. disclose a reflector layer, substrate, made up of mica or glass flakes or of aluminum, titanium or combinations thereof onto which a dielectric layer of SiO_2 is deposited; an alternating layers of low and high or high and low (or any combinations thereof as discussed in details above) may be deposited thereon as well. Furthermore, as described in details above, it would have been obvious to modify the thickness to obtain desired effects (column 1, lines 24-30).

Phillips et al. does not expressly disclose doping carbon black particles, metal particles, and/or pigment particles.

Steudel et al. disclose multilayer pigment based on platelet-form of mica, which is coated with colored or colorless oxides of high and low refractive index materials in which SiO_2 is disclosed as a low refractive index material and TiO_2 is disclosed as a high refractive index material (Abstract; [0019]). Steudel et al., further, disclose introducing carbon black into the low refractive index layer; also, the reference discloses providing a protective layer onto the multilayer pigment ([0039], [0040]).

Thus, it would have been obvious, at the time the invention was made, to modify Phillips et al. in order to include the carbon black into their low refractive index layer (namely called dielectric layer) and to apply a protective layer; the motivation for applying carbon black is to achieve specific color effects (Steudel et al., [0039]) and for applying a protective layer is to improve the light, weather, and chemical stability or to increase the compatibility in various media (Steudel et al., [0040]).

Although because of the recitation of claim 1, the existence of protective layer (D) is optional, claim 11 is rejected above for the case where such layer (i.e. layer (D)) is present.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Phillips et al. as applied to claim 1 above, and further in view of US Patent No. 6,579,355 to Schmidt et al.

Regarding claim 12, Phillips et al., in addition to the disclosure applied to claim 1 as detailed above, disclose that various coating processes can be utilized in forming the layers such as sol-gel hydrolysis, chemical vapor deposition, and more (column 5, lines 58-65; column 11, lines 29-35).

Phillips et al. does not expressly disclose the hydrolytic decomposition of metal salts in aqueous medium.

Schmidt et al., also, drawn to interference pigment, which are multiply coated in which the hydrolyzed metal salts are precipitated onto the substrate (column 1, lines 5-7; column 4, lines 15-40).

At the time of the invention, it would have been obvious to add the details of the wet chemical method of Schmidt et al. in Phillips et al. motivated by the fact that Schmidt et al. specifically disclose the deposition of metal oxide layers onto substrates in multilayer pigment with alternating layers of high and low refractive layers materials and both references are from the same field of endeavor and. Furthermore, said process is well settled to be one known to one skilled in the art.

Claims 1, 3-4, 6-7, and 9-14 are rejected under 35 U.S.C. 103(a) as being unpatentable by US Patent Application Publication No. 2004/023779 to Bagala, SR. et al. in view of Schmidt et al.

Regarding claims 1, 3-4, 6-7, and 9-14, Bagala, SR. et al. disclose a multiply coated pigment used in cosmetics, plastics, security markings, etc. wherein metal oxides such as SiO2 is coated onto substrates, such as mica, glass or a blend of them, wherein further coated with high refractive index oxides such as Fe2O3 ([0019]-[0020], [0031]-[0032], [0036], [0039]-[0041]).

The limitation regarding claim 12 and the process of precipitating metal oxides onto substrate can be found in Examples wherein metal salts are hydrolyzed in aqueous solution to precipitate metal oxides onto substrate or onto previously precipitated metal oxides.

With reference to the limitations of claims 9-10, it is noted that since they depend on claim 1 and refer back to layer (C) of claim 1 which may or may not be present, instant reference is assumed to read on the limitation of said claims. Said layer (C) may or may not be present in claim 14 as well.

With reference to the limitations of claim 11, it is, again, noted that said protective layer is recited to be optional in claims 1 and 14.

With reference to the high refractive index material having a refractive index value of greater than 1.8, it is noted that it is well settled in the art that metal oxides such as TiO_2, Fe_2O_3, Cr_2O_3, etc. has such as a high refractive index value.

Bagala, SR et al. do not expressly disclose a layer thickness for the SiO2 layer.

Schmidt et al., drawn to multiply coated platelet-shaped substrates for interference pigments, teach that multiple layers are precipitated onto the substrate by hydrolyzing metal salts (column 1, lines 5-7; column 4, lines 15-40). Furthermore,

Schmidt et al. disclose that attractive interference pigments are obtained by a suitable choice with regard to layer thickness; moreover, Schmidt et al. disclose that the thickness of metal oxide layers is generally within the range of from about 10nm to about 1000nm (column 3, lines 15-28). Therefore, it would have been obvious to modify the thickness of layer SiO_2 to any desired thickness such as the one claimed in the instant application.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bagala, SR et al. in view of Schmidt et al. as applied to claim 1 above, and further in view of PCT Application No. WO 01/77235 to Steudel et al.

This rejection is over WO 01/77235; however, for convenience, the paragraph numbers of the equivalent US Patent, US Patent Application Publication No. 2003/0092815, will be cited below.

Regarding claim 5, Bagala, SR et al., as detailed above, disclose mica or glass substrates coated with a low refractive index material such as SiO_2 which is further coated with a high refractive index material and the combination of said reference with Schmidt et al., as detailed above, teach that any thickness for SiO_2 layer is obvious.

Bagala, SR et al. in view of Schmidt et al. do not expressly disclose doping carbon black particles, metal particles, and/or pigment particles.

Steudel et al. disclose multilayer pigment based on platelet-form of mica, which is coated with colored or colorless oxides of high and low refractive index materials in

which SiO_2 is disclosed as a low refractive index material and TiO_2 is disclosed as a high refractive index material (Abstract; [0019]). Steudel et al., further, disclose introducing carbon black into the low refractive index layer; also, the reference discloses providing a protective layer onto the multilayer pigment ([0039], [0040]).

Thus, it would have been obvious, at the time the invention was made, to modify Bagala, SR et al. in view of Schmidt et al. in order to include the carbon black into their low refractive index layer (namely called dielectric layer) and to apply a protective layer; the motivation for applying carbon black is to achieve specific color effects (Steudel et al., [0039]) and for applying a protective layer is to improve the light, weather, and chemical stability or to increase the compatibility in various media (Steudel et al., [0040]).

Response to Amendment

Applicants' amendment to claim 1, page 2, filed May 27, 2008 is acknowledged. However, the amendment is not sufficient to place the claim in condition for allowance as set forth above.

Applicants' amendment to claim 3, page 2, filed May 27, 2008, is acknowledged.

Applicants' submission of new claim 14, filed May 27, 2008, is acknowledged.

Response to Arguments

Applicants' arguments filed May 27, 2008 have been fully considered but they are not persuasive.

Applicants have argued that Phillips et al. do not disclose a pigment having a substrate which is mica or glass flakes.

The Examiner, respectfully, submits that said reference in column 11, lines 17-22, as pointed by the Applicants, disclose the use of mica or glass flakes as substrate as an alternative embodiment.

Applicants have argued that Phillips et al. although disclosing the use of mica or glass flakes in column 11, disclose coating them with a reflective metallic coating.

The Examiner, respectfully, submits that based on the language of claims 1 and 14, a broad interpretation may be made that said first layer of SiO_2 is not in contact with the substrate; furthermore, column 11, lines 17-29 of Phillips et al. disclose a reflector coating and as an example, it refers to metallic coating.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pegah Parvini whose telephone number is 571-272-2639. The examiner can normally be reached on Monday to Friday 8:00am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo can be reached on 571-272-1233. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/P. P./
Examiner, Art Unit 1793

/Michael A Marcheschi/
Primary Examiner, Art Unit 1793